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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/696,961	10/30/2003	Hieyoung W. Oh	14025	8475

7590 02/27/2006

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EXAMINER	
FLANIGAN, ALLEN J	
ART UNIT	**PAPER NUMBER**
3753	

DATE MAILED: 02/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/696,961	OH, HIEYOUNG W.	
	Examiner	Art Unit	
	Allen J. Flanigan	3753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 December 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) _____ is/are pending in the application.

4a) Of the above claim(s) *5,6,11,12,16 and 17* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4,7,8,10,13-15 and 18-20* is/are rejected.

7)☒ Claim(s) *3 and 9* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Applicant's election with traverse of the species of Fig. 2 in the reply filed on 12/22/2005 is acknowledged. The traversal is on the ground(s) that "there are only a few structural differences between the various embodiments". This is not found persuasive because the dispositive issue is whether the various embodiments are patentably distinct; if the applicant is willing to explicitly admit on the record that the differences are minor enough to render the embodiments patentably indistinct, the requirement will be withdrawn.

Absent such an admission, the requirement is still deemed proper and is therefore made FINAL.

Claims 5, 6, 11, 12, 16, and 17 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 12/22/2005.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, 13, 14, 19, and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Grapes et al.

Grapes et al. disclose a heat spreader employing graphite fibers; the fibers are embedded in a matrix of epoxy, for example. As pointed out in Grapes et al., the thermal conductivity of epoxy is low (0.2 BTU-ft/hr-ft^2-°F), and it is an electrically insulating material as well.

Regarding the claimed "carrier" (claims 2, 8, 14), note the clamping arrangement shown in Fig. 1 at the ends of the heat spreader.

Regarding the heated body of claim 20, note circuit boards 18, 20 provided with heat generating components 22.

Claims 1 and 7 are rejected under 35 U.S.C. 102(e) as being anticipated by Houle et al.

Houle et al. teach a heat transmitter employing what are described as "carbon" fibers embedded in a matrix that may be, for example, ceramic (which is both electrically and thermally insulative). One of the suggested materials for such fibers is described as Amoco K1100. This material is believed to be graphite fiber[1], and thus clearly meets the claim language.

Claims 4 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Hyman et al.

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[1] Note for example the description of thermal properties of "K1100 graphite fiber" from Amoco listed in a technical data page found at:

Like Grapes et al., Hyman et al. disclose an epoxy/graphite fiber matrix for heat conduction, this embodiment being curved to conform to the body 12. Note support structure 21 regarding the claimed carrier.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 7, 8, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combined teachings of Houle et al. and Grapes et al.

Assuming arguendo that the fibers taught in Houle et al. do not fall within the scope of the claims, it would have been an obvious substitution of known equivalents to employ the graphite fibers of Grapes et al. in the heat transmitter of Houle et al. Alternately, it would have been an obvious substitution of known equivalents to employ ceramic as the matrix material in Grapes et al. in place of an epoxy resin, particularly in view of Houle et al. listing both ceramic and resin as suitable matrix materials for embedding the conductive fibers.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Houle et al. in view of Hyman et al.

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http://www.electronics-cooling.com/html/2000_jan_techdata.html

As indicated above in the rejection of claim 8, both ceramic and epoxy resin are known to be suitable matrix materials for forming heat transmitting layers using graphite fibers. It would have been obvious to one of ordinary skill in the art at the time the instant invention was made to substitute ceramic for epoxy resin in the heat transmitter of Hyman et al.

Claims 3 and 9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The remaining references of record show thermal transmitter layers, or roller devices employing heat spreaders.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen J. Flanigan whose telephone number is (571) 272-4910. The examiner can normally be reached on M-F 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gene Mancene can be reached on (571) 272-4930. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Allen J. Flanigan
Primary Examiner
Art Unit 3753

AJF